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# Medication and dietary supplement use in athletes; prevalence and safety

Joshua Chalmers, Fiona Halar, Helen O'Connor, Tania Prvan, Mike Climstein, Wendy Stuart-Smith, Peter Reaburn, Janelle Gifford

## Presented by

Dr Janelle Gifford, PhD, Advanced Accredited Practising Dietitian,  
Advanced Sports Dietitian

Faculty of Health Sciences, University of Sydney  
Australia

[janelle.gifford@sydney.edu.au](mailto:janelle.gifford@sydney.edu.au)



# Background

- MA are generally healthier overall than population peers
  - 8 of 9 chronic conditions ↓ prevalence vs Aus population (Halar et al, 2019 in prep)
- Supplement use is common in athletes (40-100%; Garthe et al, IJSNEM 2018)
  - ~60-62% in masters athletes (Striegel et al, IJSM 2006; Guthrie et al, IJSNEM 2016)
- Prevalence of concurrent prescription drug use and medicinal herbal medicines in older people varies (Agbabiaka et al, Drugs Aging 2017)
- Athletes, athlete support personnel, others participating in activities of the International Masters Games Association (IMGA) - bound by IMGA Anti-Doping Rules (approved by WADA 2015, IMGA 2016)



Tartans Crème Puffs 2017\*  
:tartanshockey.org.au



90 year old Heather Lee broke the world record for the 3000m walk at the AMG 2017\*  
[www.australianmastersgames.com/ne](http://www.australianmastersgames.com/ne)

# Aim

Describe the prevalence of **medication and supplement use** for **treatment** of chronic conditions, and **dietary supplement/sports food use** in masters athletes

**Prohibitions** of medications used and **potential for interactions** were also investigated.



AMG Dragon Boat participants, Lake Barrington (with permission)

# Methods

- 2017 AMG: n=4848, 2018 PPMG: n=14456
- anonymous online survey (10-20 mins)



AMG e-news 29/9/17



AMG participant filling out survey (with permission)

*University of Sydney Human Ethics Committee (Project No. 2017/592)*

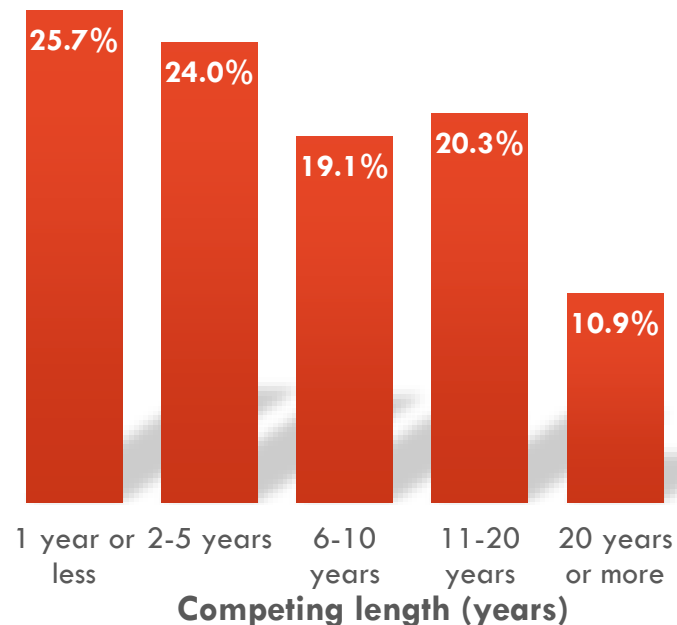
# Methods



- demographics, health conditions, treatment methods, dietary supplements/sports foods (DSSF) collected
  - representativeness: Pearson's Chi-squared, Kruskal-Wallis rank sum test
  - medications/supplements (including herbal) **treatments** doubly extracted
    - medications prohibitions categorised – international standards e.g. WADA
  - dietary supplements and sports foods collated
  - single ingredient/branded dietary supplements checked for interactions
  - measures to ensure supplement safety collated

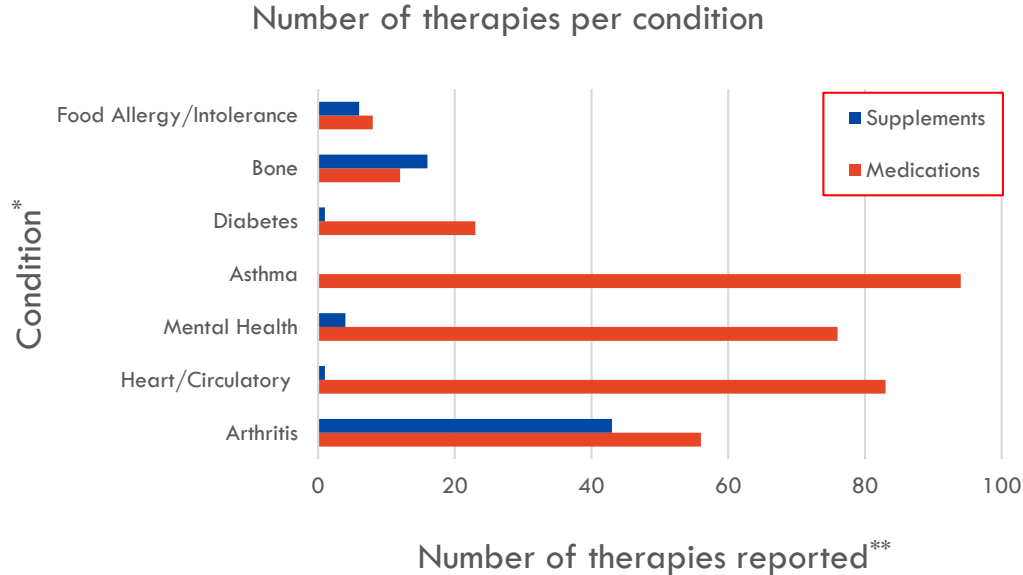
# Results

## Years competing at masters level



- $n=817$  ( $53.7 \pm 14.0$  yrs, 60.8% F)
- 84.7% ( $n=692$ ) Aus, 9.4% ( $n=77$ ) NZ
- vs all MG participants ( $p<0.001$ ):
  - $\uparrow$  age
  - $<20-39$ yo,  $>60+$
  - $\uparrow$  F
- Australian residency similar
- Top ten sports similar

# Results



\*does not include cancer or obesity (therapy for obesity not collected in AMG, medications for obesity not collected PPMG)

\*\*one person could nominate more than one therapy

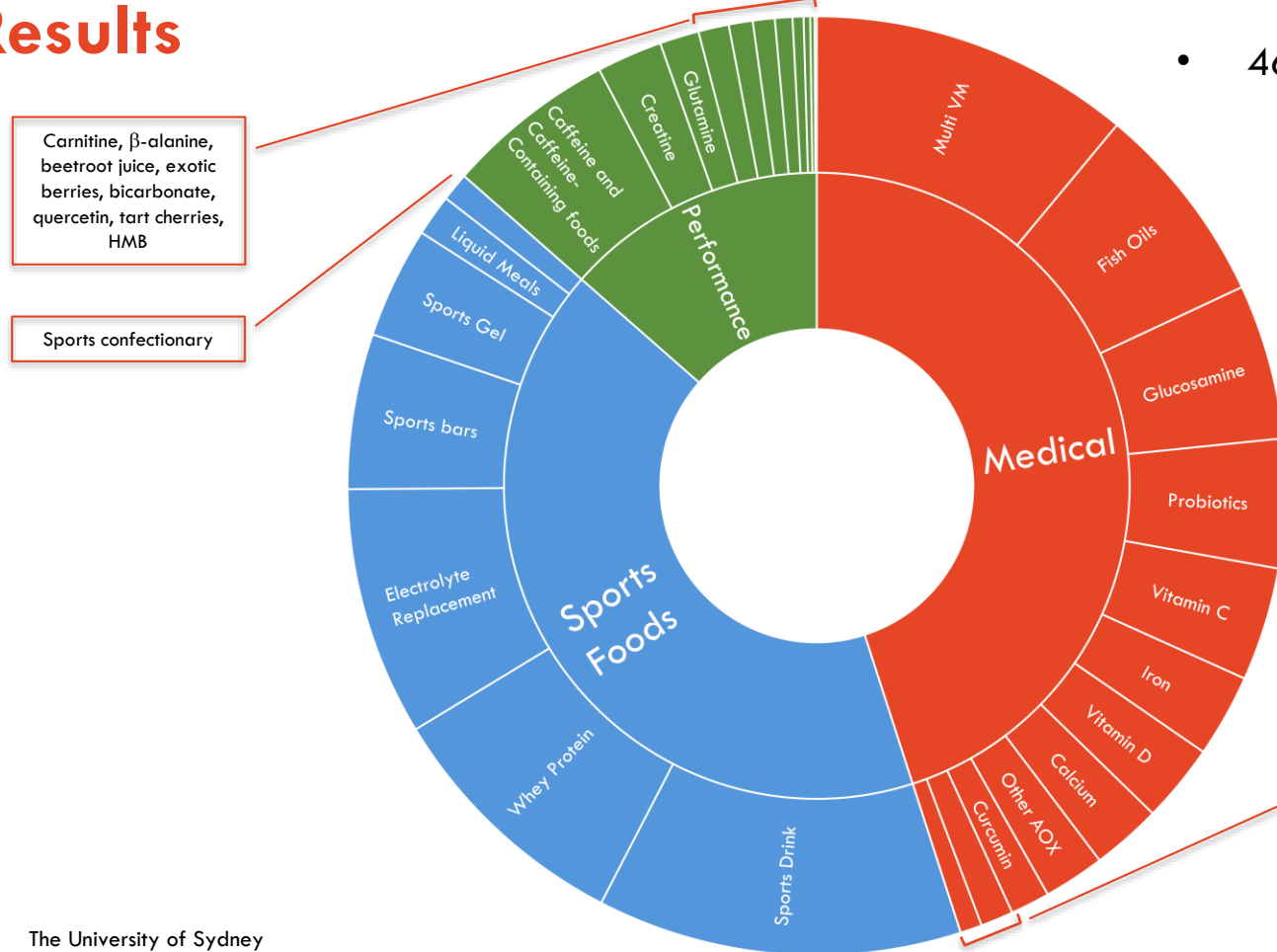
- Medical conditions
  - 48.1% (n=393) with current condition
  - 25.3% (n=206) took medications
  - 7.1% (n=58) used supplements/herbal therapies
- Medications
  - Asthma (26.6% usages): Ventolin, Seretide, others
  - Heart/Circ (23.4% usages): Telmisartan, Perindopril, Rosuvastatin, others
- Supplements
  - Arthritis/bone (64.1% usages): glucosamine, turmeric, vitamin D, calcium
  - Obesity (22.8% usages): shakes, vitamins/minerals



# Results

## Types of supplements used by masters athletes

- 46.5% (n=380) used 1-16 DSSF



# Results

- Interactions

- 46.3% used  $\geq 2$  therapies/DSSF
- 2.1% known interaction
  - e.g. fish oils + antihypertensives, creatine + nephrotoxic drugs, glucosamine + warfarin\*

**Major** = Do not use combination; contraindicated; strongly discourage patients from using this combination; a serious adverse outcome could occur.

**Moderate** = Use cautiously or avoid combination; warn patients that a significant interaction or adverse outcome could occur.

- Potential prohibitions

- n=81 individuals (106 usages)
- $\beta$ -2 agonists (n=52), Glucocorticoids (n=34), combination (n=2)
  - asthma, low BP, rapid/irregular heart beat
- $\beta$ -blockers (n=6)
  - hypertension, heart failure, rapid/irregular heart beat, other heart condition
- Diuretics/masking agents (n=4)
  - fluid retention, heart failure
- Hormone/metabolic modulators (n=5)
  - diabetes, obesity
- Stimulant (n=1)
  - obesity

Therapeutic Research Centre. Natural Medicines. Available from: <https://naturalmedicines.therapeuticresearch.com>. [Accessed 8 June 2019].

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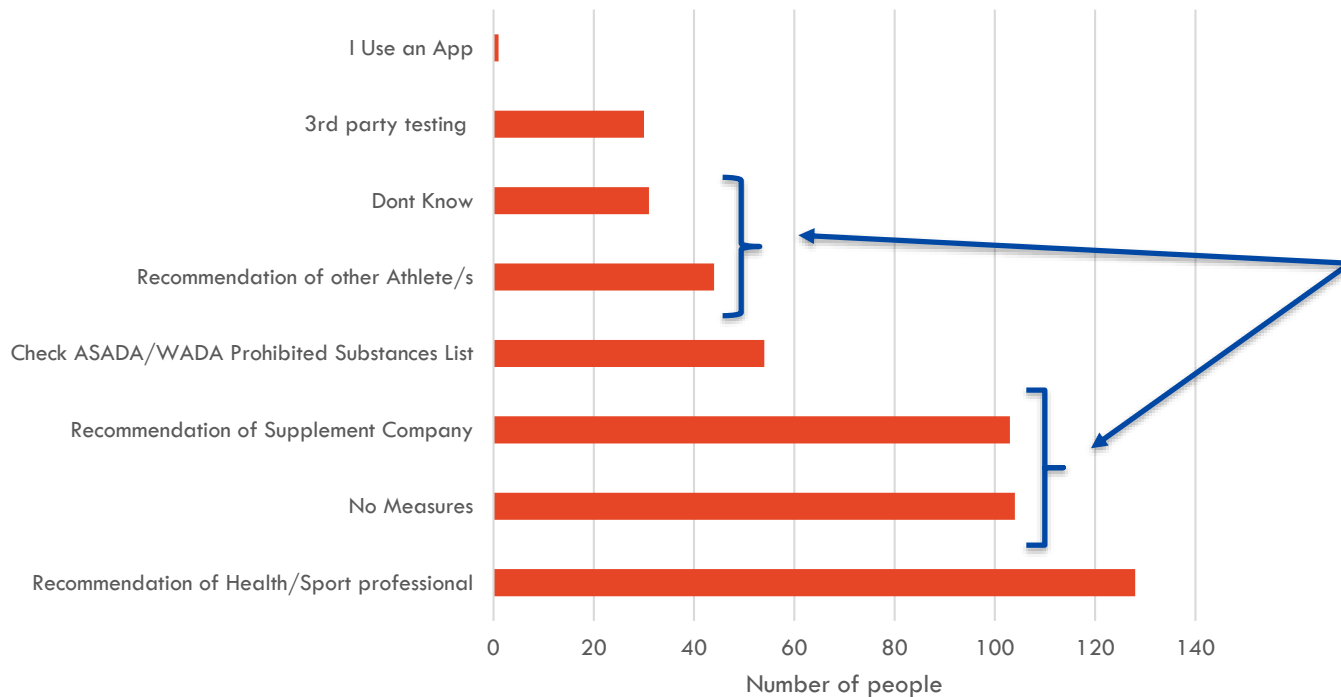
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# Results

## Measures taken to ensure supplement safety\*



\*athletes could nominate more than one option

# Limitations

- Internet platform (may also be a strength)
- Acute medication use not captured
- Interactions: multi-ingredient supplements difficult, did not check drug-to-drug
- Not possible to link safety checking methods with individual supplements
- Generalisability
  - AMG recruitment on site as well as electronically → different sports?
  - PPMG dataset on all participants was limited → limit demographic comparisons
  - majority Australian
  - Under-represented in younger age groups, over-representation of females → influence consumption of supplements (types/numbers) and medications

# Conclusions and implications

- Potential for misuse of supplements
  - supplements may interact with medications
  - possibility of doping violations
  - may not use appropriate measures to check safety
- MA likely to use supplements in combinations
  - performance supplements used with other supplements (Gifford et al, ECSS 2018)
  - multiple nutrition supplements may exceed upper limits



AMG Badminton, Burnie

## Conclusions and implications

- Medication/supplement for treatment and DSSF use is common among MA
- Many inexperienced MA may not be aware of the issues
- Health professionals
  - be pro-active in asking about medication and supplement use
  - need to be aware of risks – doping violations, adverse interactions/effects



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## THANK YOU